

ABSTRACT

A temperature compensation circuit has multiple configurable modules to produce a compensation signal whose temperature characteristic curve is the inverse of the frequency-to-temperature characteristic curve of a specified oscillator. A set of first modules that produce first sub-signals directly proportional to temperature and a set of second modules that produce second sub-signals inversely proportional to temperature have their outputs summed at a summation node. Each module may adjust the strength and shaped of its temperature characteristic sub-signal, and each module may optionally be assigned a temperature offset that impedes the output of its corresponding sub-signal until the assigned temperature offset is reached. Each of the first and second modules includes a signal generator and an optional temperature offset circuit, which may be incorporated into the operation of the signal generator. To produce a compensation signal to compensate a SAW resonator, a first module having a temperature offset and being directly proportional to temperature is summed with a second module having no temperature offset and being inversely proportional to temperature.